
Fibrlok[™] 2600 Series Multi-Fiber Optical Splice

Contents:

1.0 General 3

2.0 Preparation Kit 3

3.0 Cable Preparation 4

4.0 Ribbon Preparation 4

5.0 Ribbon Holder Preparation 6

6.0 Cleaver Operation 7

7.0 Visual Inspection of the Cleave 9

8.0 Fiber Insertion 10

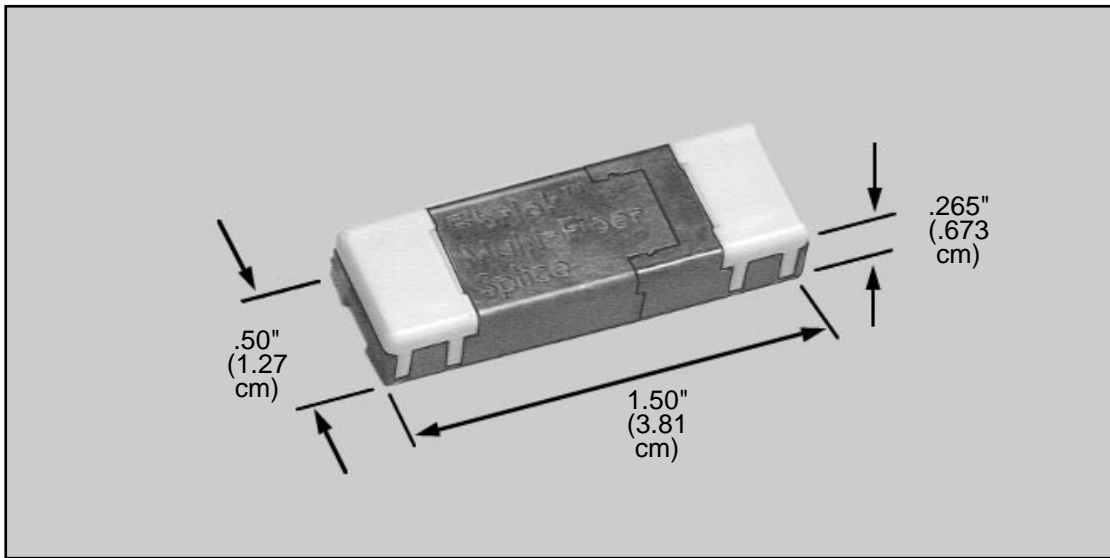
9.0 Applying the Pre-load 11

10.0 Splice Actuation 12

11.0 Multi-Fiber Stripper Cleaning and Maintenance 13

12.0 Helpful Hints 15

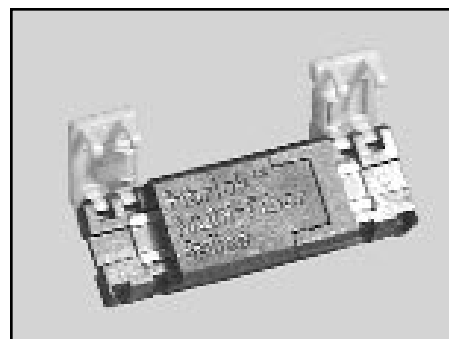
13.0 Ordering Information 16



1.0 General

The Fibrlok™ 2600 Series Multi-Fiber Optical Splicing System provides permanent mechanical splices for single-mode or multimode optical fibers with a nominal cladding diameter of 125 μ m.

The Fibrlok Multi-Fiber Optical Splicing System can be used with either fiber optic ribbon cable or individual 250 μ m coated fibers which have been organized into a ribbon structure (i.e. "ribbonized"). **For additional information concerning the use of 250 μ m fiber, refer to the Fibrlok™ 2670 Multi-Fiber Ribbon Construction Tool instruction bulletin.**

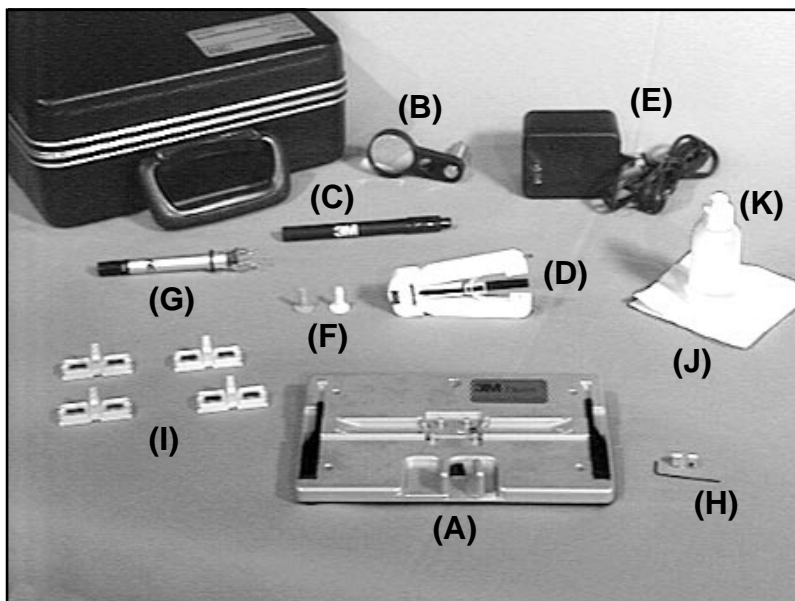


1.01 Five color-coded splices are available to splice 4, 6, 8, 10 or 12 fibers:

Product Number	Fiber Count	Color Code
2604	4	Red
2606	6	Green
2608	8	Blue
2610	10	Gray
2612	12	Yellow

2.0 Preparation Kit

Fibrlok™ Multi-Fiber Optical Splice Preparation Kit



2.01 Preparation Kit Components:

Fibrlok Multi-Fiber Optical Splice Actuator Tool (A)
Fibrlok Multi-Fiber Magnifying Lens Assembly (B)
Multi-Fiber Pen Light Assembly (C)
Multi-Fiber Stripper Handle Assembly (D)
Multi-Fiber Stripper Wall Plug Transformer (E)
Multi-Fiber Stripper Tube Guides (F)
Fibrlok Fiber Viewer Assembly (G)
Fibrlok Multi-Fiber Cleaver Spacer Gauge (H)
Fibrlok Multi-Fiber Holder Assembly (I)
Lint Free Wiping Cloths (J)
Alcohol Bottle (K)

2.02 Additional Tools and Materials Required:

Alcoa-Fujikura Model CT-03, CT-04, CT-04B, or CT-07
Cleaver
Scotchcast™ 4415 Service Wire Cleaning Kit
Cable Sheath Removal Tools
Reagent Grade Isopropyl Alcohol

Note: *Sumitomo Model FC-4 Cleaver may be used instead of the Alcoa-Fujikura Cleaver. The 2651-A Fiber Viewer must be used with this cleaver.*

Note: *A compartment under the lint free wipes is available for storing extra AAA penlight*

3.0 Cable Preparation

3.01 Remove sheath from the end of the cable per case instructions. A minimum of 8 ft. (2.4 m) is typically required.

3.02 Clean gel from the ribbons with cleaning pads in the 3M brand 4415 Service Wire Cleaning Kit. Wipe ribbon dry with towels provided in the kit.

Note: *Carefully follow safety, health, and disposal information on cleaning pad label or Material Safety Data Sheet.*

3.03 Install breakout kit if required per company practice.

3.04 Secure cable to the splice case or distribution panel housing.

4.0 Ribbon Preparation

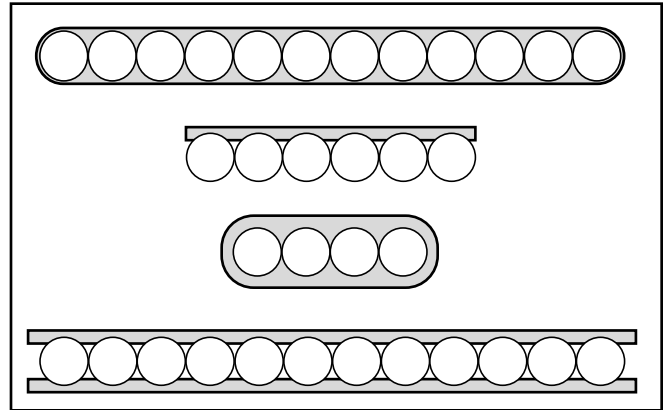
4.01 Ribbon is constructed in four different ways: bonded, ribbonized, encapsulated, and Adhesive Sandwich Ribbon. It is important to identify the type of construction so that the proper tube guide and ribbon holder can be selected.

Bonded construction has a thin layer of material that holds the fibers together. Examples are AT&T XAR Accuribbon 12 fiber and Alcatel 12 fiber Uniribbon.

Ribbonized construction is performed in the field using individual fibers and adhesive tape.

Encapsulated construction has a thick layer of material all around the fibers. Examples are NTT 2, 4, and 8 fiber ribbon.

Adhesive Sandwich Ribbon construction is used only in AT&T 12 fiber ASR ribbon. It has a polyester tape construction that is wider than the fibers.



4.02 Select the proper size tube guide from the chart.

<u>3M Part #</u>	<u>Construction</u>	<u>Color</u>
2634 2635	12 fiber bonded or ribbonized 12 fiber AT&T ASR	Light Yellow White
2637	10 fiber bonded or ribbonized	Light Gray
2639 2640	8 fiber bonded or ribbonized 8 fiber encapsulated	Light Blue Dark Blue
2641	6 fiber bonded or ribbonized	Light Green
2645 2646	4 fiber bonded or ribbonized 4 fiber encapsulated	Light Red (Pink) Dark Red

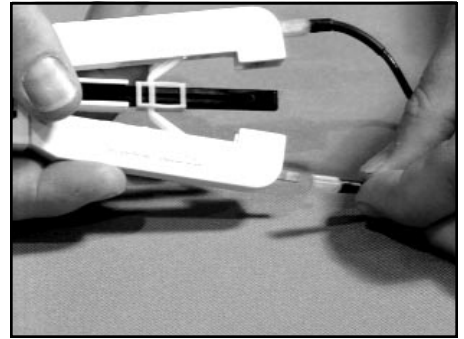
4.03 Install the tube guide into the stripper handle.

Note: *If necessary, remove the tube lock with the removal tool. Pull the tube guide out with your fingers.*

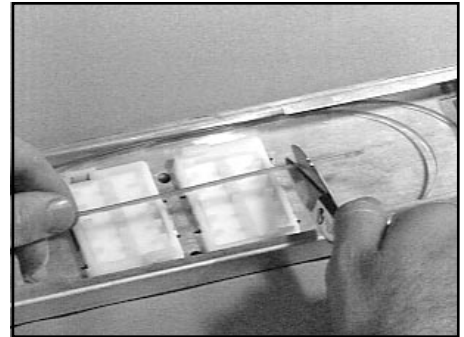


4.04 Connect the power cord from the AC adapter to the stripper handle. Plug the AC adapter into an electrical outlet.

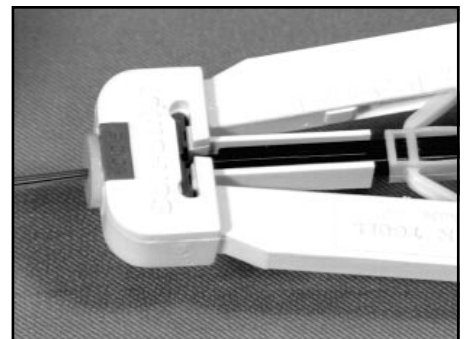
Note: *An optional 6 volt battery and cord are available.*



4.05 Arrange the fibers in the splice tray per tray instructions. Trim the ribbon end so that it extends approximately 3/4" (19 mm) beyond the center of the splice.

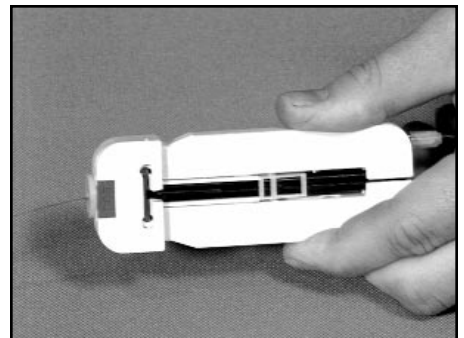


4.06 Insert the ribbon into the tube guide and position the ribbon so that 1 1/4" to 1 1/2" (32 mm to 38 mm) of coating will be removed.



4.07 Close the handle on the stripper. This will activate the heating unit which will soften the coating of the ribbon.

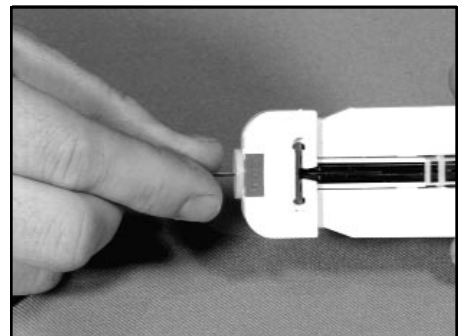
Note: *The heating unit becomes hot. Use care when handling.*



4.08 Heat the coating until it softens (usually 8 to 10 seconds at room temperature). Slowly pull the ribbon **straight** out of the stripper. The handles should remain closed until the ribbon is completely out of the stripper.

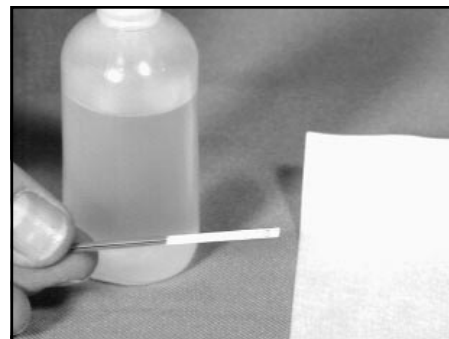
Note: *Do not keep the handles closed for more than 25 seconds or the heating unit may become damaged.*

Note: *Heating time will vary with fiber type and ambient temperature. If difficulty is experienced, refer to Section 12.*



4.09 Release the handles. Clean the stripped fibers with alcohol and a lint free cloth. Inspect for broken fibers. Repeat steps 4.05 through 4.09 if necessary.

Note: *Reagent grade isopropyl alcohol and lint free wipes are required. Carefully follow safety, health and disposal information on label or Material Safety Data Sheet for isopropyl alcohol being used.*

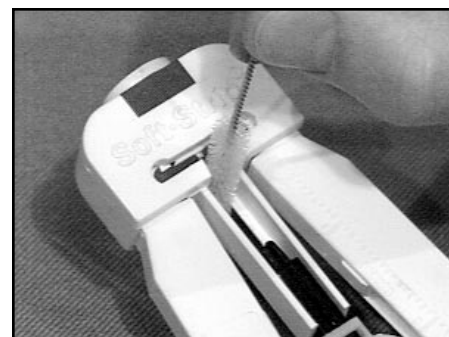


4.10 Clean the stripper before stripping the next ribbon. Slide the heating unit backwards about 1" (25 mm), or remove it from the handle. Clean the channel with the loop end of the cleaning tool.

Note: *Be gentle when cleaning the coating residue from the channel or the heating unit may become damaged. Do not press the loop hard against the channel walls. It is not necessary for the channel to be completely clean.*



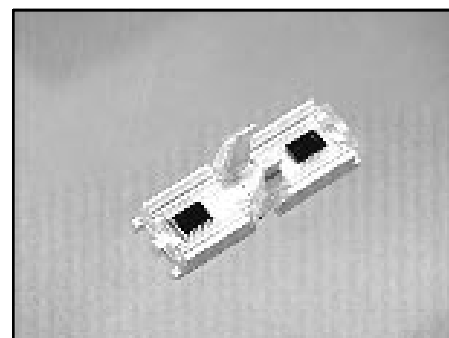
Clean the stripper blades with the brush end of the cleaning tool.



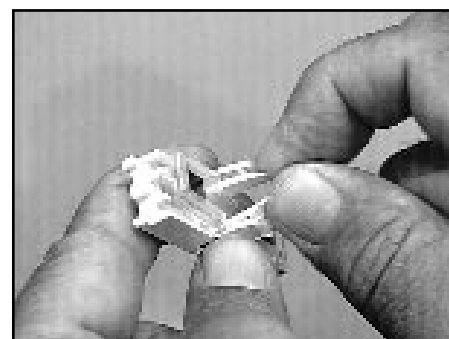
5.0 Ribbon Holder Preparation

5.01 Select the proper size ribbon holder from the chart below.

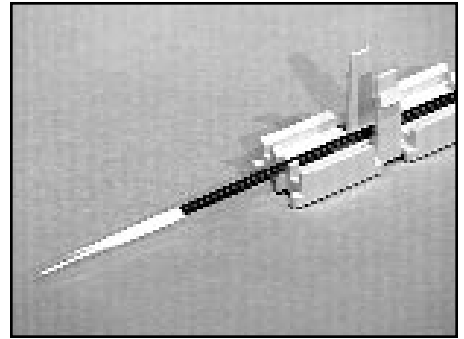
3M Part #	Application	Color
2653	12 fiber ASR	White
2654	12 fiber bonded or ribbonized	Light Yellow
2656	10 fiber bonded or ribbonized	Light Gray
2658	8 fiber bonded or ribbonized	Light Blue
2659	8 fiber encapsulated	Dark Blue
2660	6 fiber bonded or ribbonized	Light Green
2664	4 fiber bonded or ribbonized	Light Red (Pink)
2665	4 fiber encapsulated	Dark Red



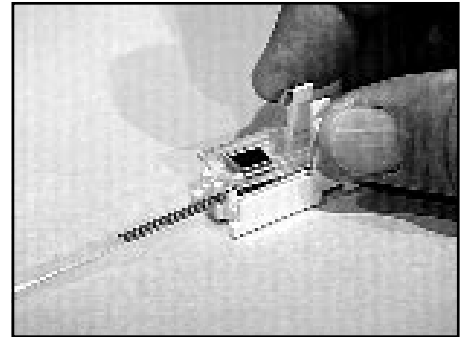
5.02 Remove the cover of the ribbon holder by squeezing the center tabs and lifting the clear outer tabs.



5.03 Lay the stripped ribbon between the guide forks. The ribbon should be positioned so that 1" to 2" (25 mm to 51 mm) of unstripped ribbon extends beyond the end of the holder.



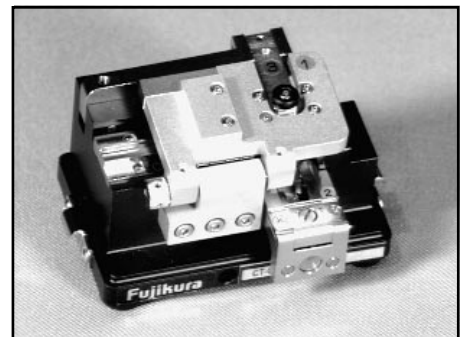
5.04 Place the cover over the ribbon and snap into place.



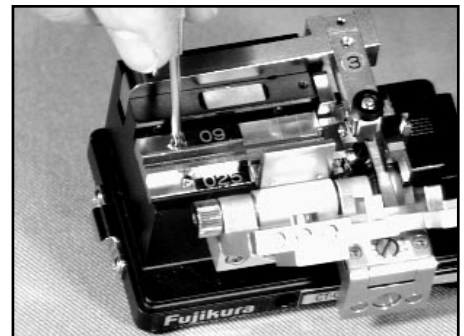
6.0 Cleaver Operation

6.01 The Alcoa Fujikura Model CT-03, CT-04, CT-04B, or CT-07, is required for the cleaving process.

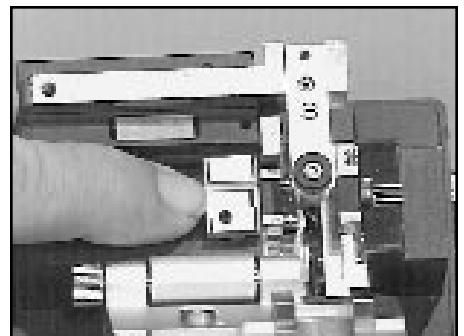
Note: *Sumitomo Model FC-4 Cleaver may also be used, along with the 2651-A Fiber Viewer.*



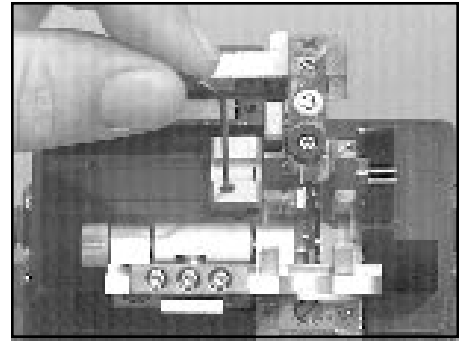
6.02 If present, the guide plate must be removed so that the cleaver spacer gauge assembly can be installed. Remove the screws that secure the guide plate. Remove the guide plate.



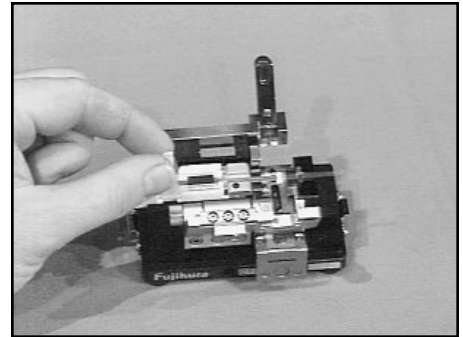
6.03 Install the cleaver spacer gauge in the slot. The spacer should be snug against the wall near the rubber pad.



6.04 Lock the spacer in place by tightening the locking screw using the supplied allen wrench.

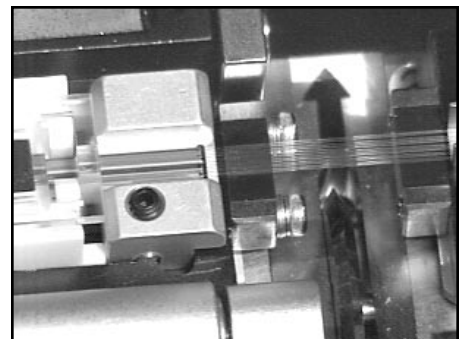


6.05 Place the ribbon holder into the cleaver. Push the ribbon holder against the cleaver spacer gauge .

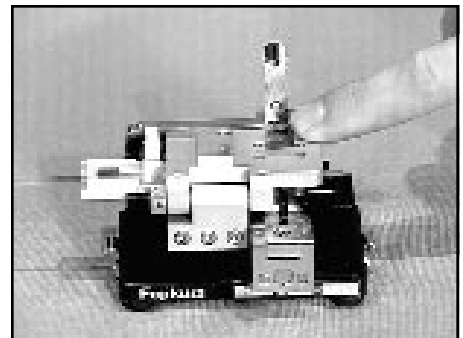


6.06 Align the end of the ribbon coating to be within the slot in the cleaver gauge. Adjust the ribbon position by pushing the ribbon holder firmly against the cleaver gauge and pulling back on the ribbon.

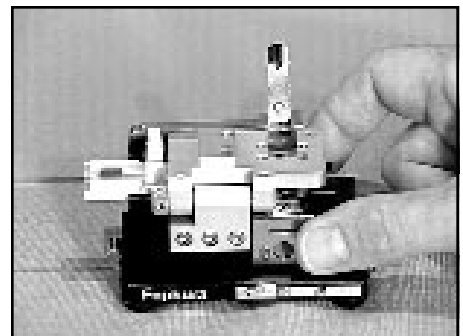
Note: *Ensure that no fibers are crossed.*



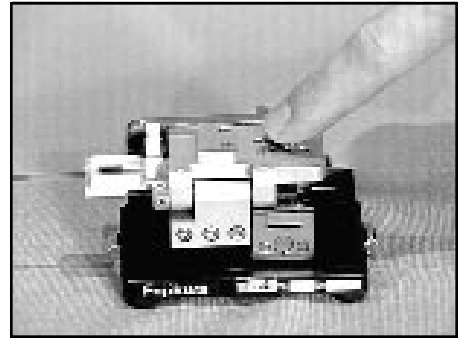
6.07 Close the cleaver clamping lid ① .



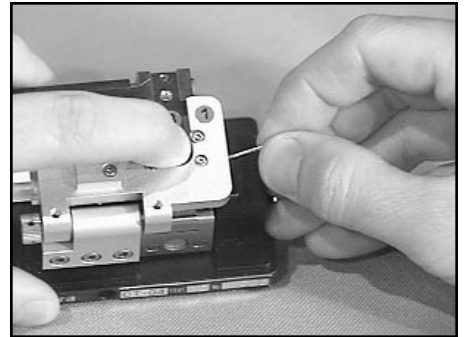
6.08 Slide the scoring sled ② across the bottom of the fibers.



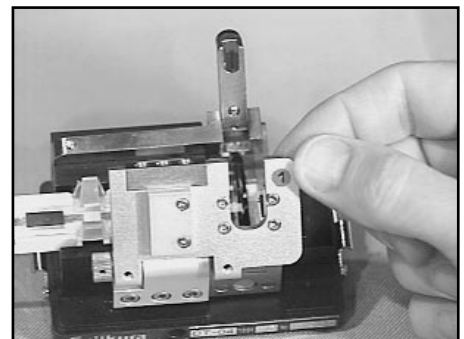
6.09 Depress the cleaving lever ③ firmly.



6.10 While holding the cleaving lever down, remove the cleaved fiber stubs, and dispose of per company practice.



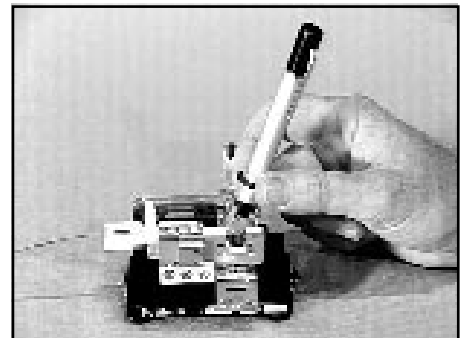
6.11 Open the cleaving lever and clamping lid.



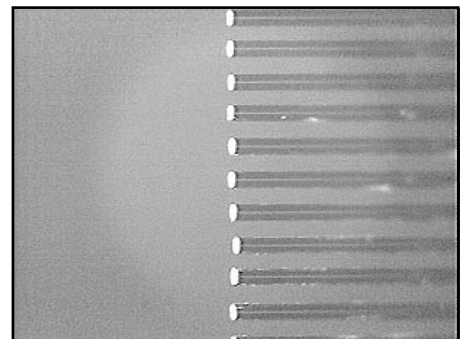
7.0 Visual Inspection of the Cleave

7.01 Install the fiber viewer on the cleaver and rotate the viewer barrel to focus. Observe the cleaved ends of the fiber. If defects are observed, repeat steps 4.05 through 6.11.

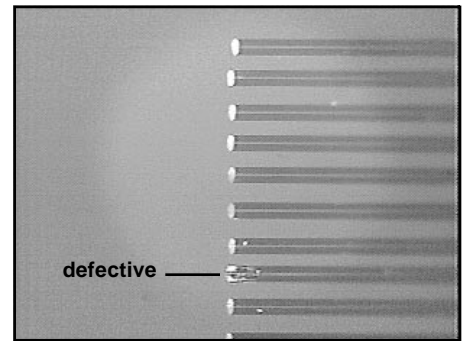
Note: *For the best viewing results, allow ample light to enter from the top and left side. In dark surroundings use the penlight supplied.*



7.02 Properly cleaved fibers.



7.03 Defect in cleaved fibers.

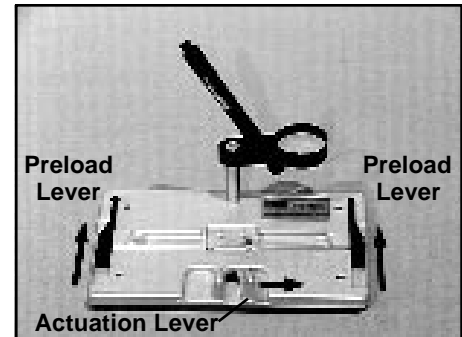


7.04 If fibers are properly cleaved:

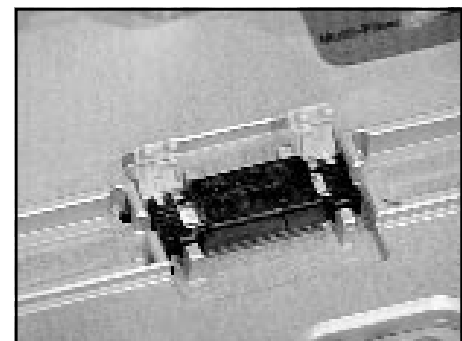
- Remove the fiber viewer from the cleaver, and
- Remove the ribbon holder from the cleaver.

8.0 Fiber Insertion

8.01 Move the actuation lever on the actuator tool all the way to the right. Install the magnifying lens and pen light assemblies. Move the preload levers to the up position.



8.02 Place a Fibriok Multi-Fiber Optical Splice into the actuator tool so that the covers open toward the back of the actuator tool. Open both covers completely.

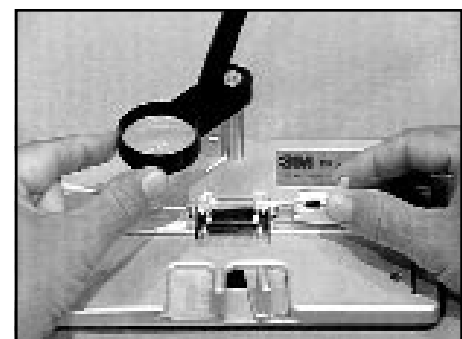


Note: *Carefully follow safety, health, and disposal information on splice label or Material Safety Data Sheet.*

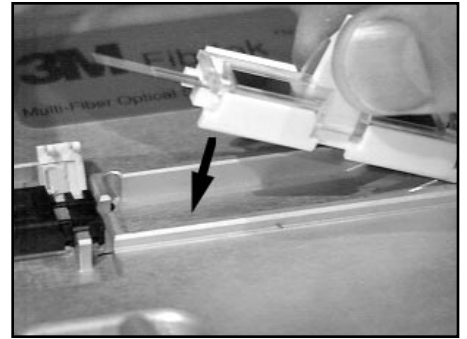
8.03 Lay the back end of the ribbon holder against the backstop of the holder guide track.



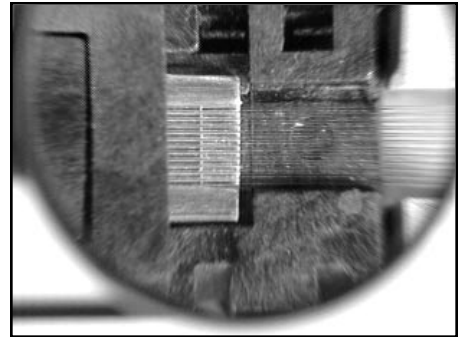
8.04 Position the magnifying lens assembly and pen light assembly over the splice.



8.05 Lower the front end of the ribbon holder to lay the cleaved fibers in the V grooves of the splice. If the fibers are not positioned properly in the V grooves, raise and lower the front end of the ribbon holder until the fibers are positioned properly.

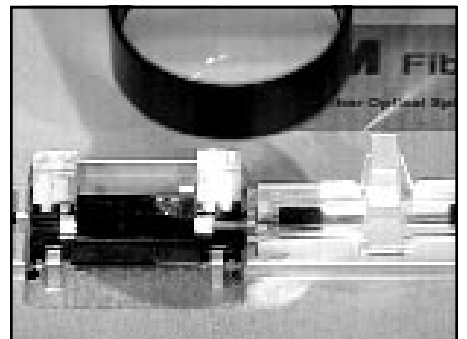


8.06 Proper positioning of fibers.



8.07 Slowly slide the fibers into the splice by moving the ribbon holder down the ramp until it stops.

Note: *If resistance is felt, back out fibers slightly and continue insertion.*



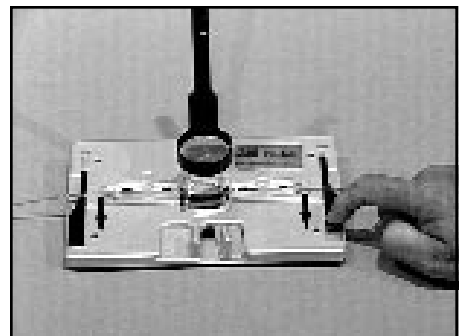
8.08 Select the mating fiber ribbon and identify fiber #1 for proper alignment into the splice. Repeat the Ribbon Preparation, Ribbon Holder Preparation, Cleaver Operation, Visual Inspection of the Cleave, and Fiber Insertion (sections 4.05 to 8.07) for the other side of the splice.

Note: *Fiber contact can be confirmed by observing the movement of the first ribbon and holder as the second ribbon is inserted.*

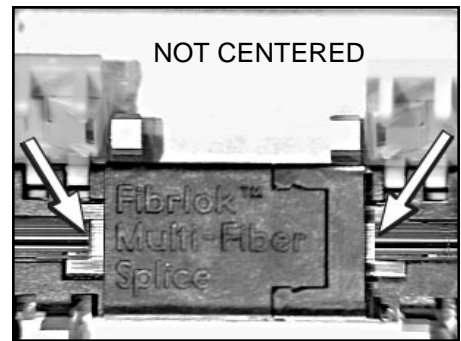
If no movement is observed, a successful splice is not likely. It is recommended that the cleaver, ribbon holders, and actuator tool be cleaned and checked for proper operation. Repeat Steps 4.05 through 8.08 for both ribbons. Use a new Fibrlok Multi-Fiber Optical Splice.

9.0 Applying the Pre-load

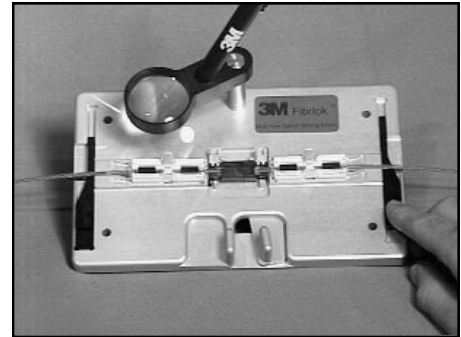
9.01 Move the pre-load levers, one at a time, toward you as far as they will go.



9.02 Look at the amount of bare glass where each ribbon enters the splice. The amount of bare glass should be about the same on each side.

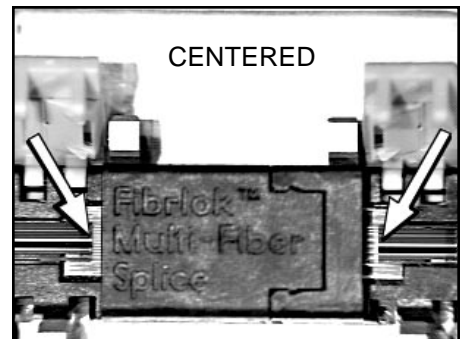


9.03 If necessary, center the ribbons by selecting the pre-load lever that is closest to the shorter length of bare glass. Slowly slide the lever back (away from you) until the holders move and the ribbons appear centered.



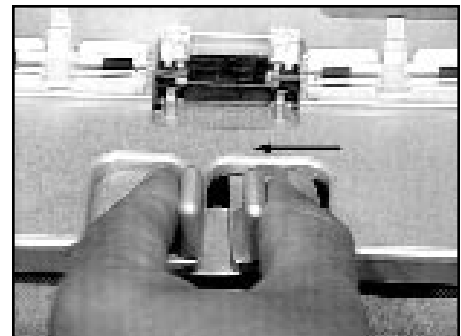
9.04 Return the lever to its forward position. If the ribbon was adjusted too far, re-adjust using the other lever.

Note: *Make sure both pre-load levers are all the way forward (toward you) when done.*



10.0 Splice Actuation

10.01 Actuate the splice by squeezing the actuation lever **slowly** until it stops.

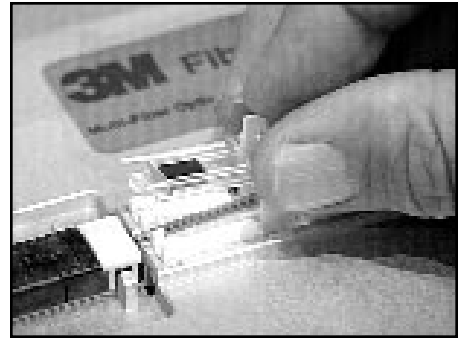


10.02 Close both splice covers.

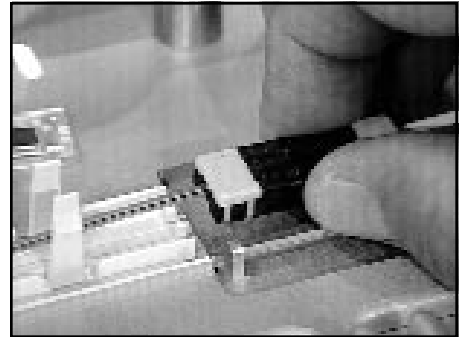
Note: *Some protective gel may be visible after closing covers.*



10.03 Remove the cover of each ribbon holder by squeezing the center tabs and lifting the outer tabs.



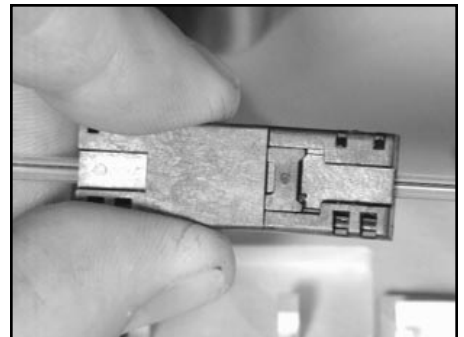
10.04 Gently lift the splice and ribbons out of the actuator tool.



10.05 Turn the splice over and verify that the wedge has been fully pushed against the splice body.

10.06 If the wedge is not against the splice body, move the actuation lever to the right, place the splice back into the actuator tool and squeeze the actuation lever again.

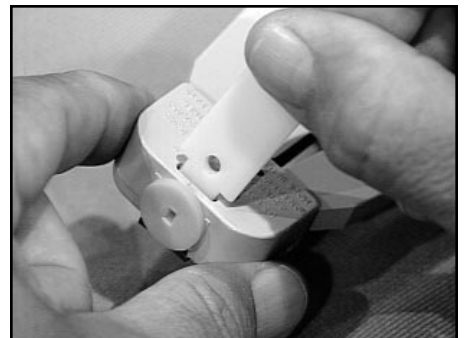
10.07 Remove the ribbon holders from the actuator tool.



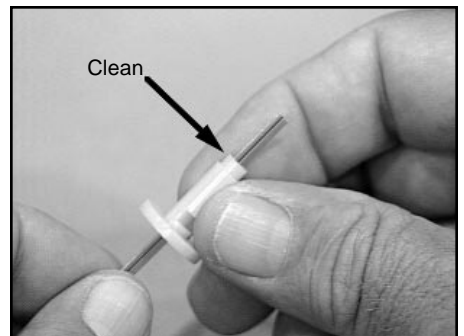
11.0 Multi-Fiber Stripper Cleaning and Maintenance

11.01 Tube Guide

a. The stripper tube guide should be cleaned periodically to ensure good performance. Remove the tube guide by unlatching the tube lock with the white pushout tool. Pull the tube guide out of the pivot housing.



b. Clean the inside of the tube guide with compressed air. A length of unstripped ribbon may also be used for cleaning if compressed air is not available. Also clean around the outside tip of the tube guide.

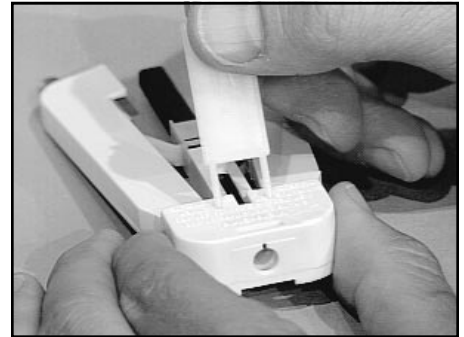


- c. Insert the tube guide into the pivot housing. Secure the tube guide with the tube guide lock.

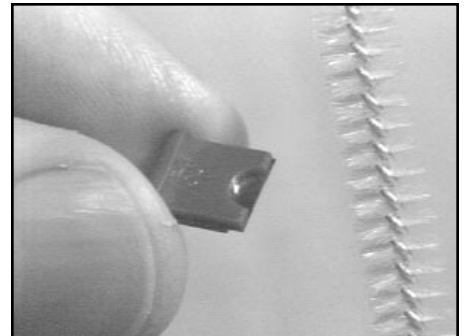


11.02 Stripper Blades - Cleaning

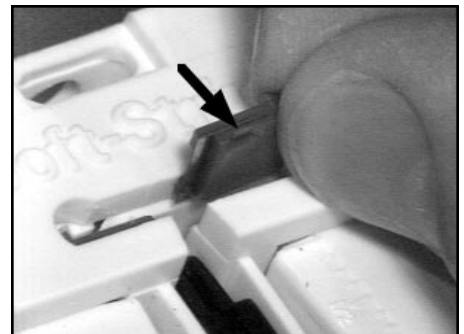
- a. If the stripper performance is unsatisfactory after the normal cleaning procedure (section 4.10), the stripper blades may need to be removed from the handle assembly for a more thorough cleaning.
- b. Remove the tube guide per section 11.01 a. Use the pushout tool to push the blades out of the handle assembly.



- c. Remove all foreign material from the front and back sides of the blades, especially around the semicircular region.



- d. Replace the blades in the pivot housing. **The molded recesses in the blades should face outward.** Push the blades into place with the pushout tool. Reinstall and secure the tube guide per section 11.01 c.
- e. After installing blades, tube guide, and tube lock, close the handles once to align the blades.



11.03 Stripper Blades - Replacement

- a. If the stripper performance is unsatisfactory after a thorough cleaning, the blades need to be replaced. Remove the blades per 11.02 b.
- b. Place the new blades into the pivot housing per 11.02 d and e.

12.0 Helpful Hints

Hint 1: Stripping in Cold Temperatures:

When stripping in cold temperatures, the heating time for the stripper will be longer. For an ambient temperature around 32° F (0° C), most ribbons should be heated approximately 12 to 15 seconds before pulling the ribbon through. The handles can also be held closed for a longer time without damaging the heater unit.

Hint 2: Stripping in Hot Temperatures:

At high temperatures, the heating time will be less. At a temperature of 100° F (40° C), the heating time should be approximately 6 to 8 seconds. For other temperatures, adjust the time accordingly.

Hint 3: Stripping Ribbonized Fibers:

Sometimes stripping ribbonized fiber can be difficult. This is due to the fiber, not the ribbonizing process. The coating material of some loose tube fibers reacts to heat and bonds to the glass. If this is the case, the stripped fibers will have heavy residue that cannot be easily wiped off. This type of fiber must be stripped with less heat. Therefore, heat it only a short time and then pull hard on the ribbon, to move it through the tool quickly. See Hint 5.

Hint 4: Broken Fibers:

When stripping the ribbon, sometimes broken fibers occur. Fibers broken at the very beginning of the strip are usually caused by poorly made ribbon or using the wrong size tube guide. Always close the handles slowly, as this allows the fibers to align with the blades.

Fibers that are broken somewhere along the length of fibers are caused by stripping technique or poor ribbon. Try heating the ribbon longer, pulling more slowly, and being careful to pull the ribbon straight out of the tool.

Hint 5: Fiber Residue:

After cleaning the fibers, some residue may remain. Often the residue is found on the region of glass that is removed in the cleaving process, so is not a problem (if it doesn't affect the cleave). Sometimes, residue can be seen on the portion of glass that is to be inserted into the splice. A light amount of residue found along the sides of the fibers or away from the cleaved ends will not affect the splice. But if residue is found on the top or bottom of the glass and near the cleaved ends, the fibers should be re-stripped, cleaned, and cleaved.

Hint 6: Disposing of Cleaved Fiber Stubs:

With some cleaver models, the fiber stubs can be grasped before opening the clamping lid, as shown in 6.10. This is the easiest way to dispose of cleaved stubs. With other models the clamping lid must be opened first. In this case, using adhesive-backed tape is a convenient way to collect the fiber ends.

Hint 7: Viewing the Cleaved Ends:

The key to good inspection is good lighting. Allow light to enter from the side of the cleaver that the holder is on. This is the top and left for the Fujikura cleaver, and the top and right for the Sumitomo cleaver. In dark areas, use the penlight provided in the kit for additional lighting.

Hint 8: Laying the Fibers into the V-Grooves:

Sometimes the fibers are difficult to lay into the V-grooves, because they have shifted to one side or the other. To solve the problem, lift the holder up and grasp the coated ribbon between the holder and the bare fiber. Now shift the ribbon in the appropriate direction. The fibers should now lay into the V-grooves.

13.0 Ordering Information

<u>P/N</u>	<u>Description</u>	<u>Packaging</u>
Splices		
Case 2604	Fibrlok™ Multi-Fiber Optical Splice (4 Fiber)	3/Pkg; 4 Pkg/
Case 2606	Fibrlok™ Multi-Fiber Optical Splice (6 Fiber)	3/Pkg; 4 Pkg/
Case 2608	Fibrlok™ Multi-Fiber Optical Splice (8 Fiber)	3/Pkg; 4 Pkg/
Case 2610	Fibrlok™ Multi-Fiber Optical Splice (10 Fiber)	3/Pkg; 4 Pkg/
Case 2612	Fibrlok™ Multi-Fiber Optical Splice (12 Fiber)	3/Pkg; 4 Pkg/
Splice Preparation Kits		
2600	Fibrlok™ Multi-Fiber Optical Splice Preparation Kit (U.S.)	1 Kit/Case
2601	Fibrlok™ Multi-Fiber Optical Splice Preparation Kit (O.U.S.)	1 Kit/Case
Ribbon Construction Tool Kit		
2670	Fibrlok™ Multi-Fiber Ribbon Construction Tool	1 Kit/Case
Splice Organizer Trays and Accessories		
2524-MF	Fibrlok™ Multi-Fiber Splice Tray	3/Case
2672	Fibrlok™ Multi-Fiber High Density Splice Tray	3/Case
2673	Fibrlok™ Multi-Fiber High Density Splice Tray Pedestal Base	1/Case
78-8079-7864-4	Multi-Fiber Splice Holder (For use with 2672 Splice Tray)	12/Case
System Components/Spare Parts		
2620	Fibrlok™ Multi-Fiber Optical Splice Actuator Tool	1/Case
2621	Fibrlok™ Multi-Fiber Magnifying Lens Assembly (w/o Light)	1/Case
2622	Fibrlok™ Multi-Fiber Pen Light Assembly	1/Case
2630	Multi-Fiber Stripper Handle Assembly	1/Case
2631	Multi-Fiber Stripper Wall Plug Transformer - 110 volt	1/Case
2631-A	Multi-Fiber Stripper Wall Plug Transformer - 220 volt	1/Case
2634	Multi-Fiber Stripper Tube Guide (12 Fiber bonded or ribbonized)	1/Case
2635	Multi-Fiber Stripper Tube Guide (For AT&T 12 Fiber ASR Ribbon)	1/Case
2637	Multi-Fiber Stripper Tube Guide (10 Fiber bonded or ribbonized)	1/Case
2639	Multi-Fiber Stripper Tube Guide (8 Fiber bonded or ribbonized)	1/Case
2640	Multi-Fiber Stripper Tube Guide (8 Fiber encapsulated)	1/Case
2641	Multi-Fiber Stripper Tube Guide (6 Fiber bonded or ribbonized)	1/Case
2645	Multi-Fiber Stripper Tube Guide (4 Fiber bonded or ribbonized)	1/Case
2646	Multi-Fiber Stripper Tube Guide (4 Fiber encapsulated)	1/Case
78-8079-7875-0	Multi-Fiber Stripper Replacement Blades	1 Set/Case
78-8079-7876-8	Multi-Fiber Stripper Heater Unit	1/Case
78-8091-2193-8	Cleaning Brush	3/Case
2651	Fibrlok™ Fiber Viewer Assembly (For use with Fujikura Cleaver)	1/Case
2651-A	Fibrlok™ Viewer Assembly (For use with Sumitomo Cleaver)	1/Case
2652-A	Fibrlok™ Multi-Fiber Cleaver Spacer Gauge	1/Case
2653	Fibrlok™ Multi-Fiber Holder Assembly (For AT&T 12 Fiber ASR Ribbon)	2/Set, 1 Set/Case
2654	Fibrlok™ Multi-Fiber Holder Assembly (12 Fiber bonded or ribbonized)	2/Set, 1 Set/Case
2656	Fibrlok™ Multi-Fiber Holder Assembly (10 Fiber bonded or ribbonized)	2/Set, 1 Set/Case
2658	Fibrlok™ Multi-Fiber Holder Assembly (8 Fiber bonded or ribbonized)	2/Set, 1 Set/Case
2659	Fibrlok™ Multi-Fiber Holder Assembly (8 Fiber encapsulated)	2/Set, 1 Set/Case
2660	Fibrlok™ Multi-Fiber Holder Assembly (6 Fiber bonded or ribbonized)	2/Set, 1 Set/Case
2664	Fibrlok™ Multi-Fiber Holder Assembly (4 Fiber, bonded or ribbonized)	2/Set, 1 Set/Case
2665	Fibrlok™ Multi-Fiber Holder Assembly (4 Fiber, encapsulated)	2/Set, 1 Set/Case
2671	Fibrlok™ Fiber Optic Ribbon Construction Tape	200 Strips/ Pkg; 5 Pkg/
Case		
2680	Multi-Fiber Stripper Power Cord (For use with 6v battery)	1/Case
2681	Battery Carrying Case, Multi-Fiber Stripper	1/Case
78-8079-7686-1	Blade and Mount Assembly, Multi-Fiber Ribbon Construction Tool	1/Case
80-6104-4329-5	Alcohol Bottle	1/Case
80-6104-4324-6	Lint Free Cloth	100/Pkg.
78-8079-7975-8	Carrying Case, Splice Preparation Kit	1/Case

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